



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/762,424	08/22/2001	Morihiko Hayashi	6640762113	4066
530	7590	08/03/2006	EXAMINER	
LERNER, DAVID, LITTENBERG, KRUMHOLZ & MENTLIK 600 SOUTH AVENUE WEST WESTFIELD, NJ 07090			MEW, KEVIN D	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 08/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/762,424

Applicant(s)

HAYASHI, MORIHIKO

Examiner

Kevin Mew

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-97 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-30, 36-51, 53 and 58-95 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5, 7, 31-33, 35, 52, 54, 55, 57, 96 and 97 is/are rejected.
- 7) ☒ Claim(s) 3, 6, 34 and 56 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Final Action

Response to Amendment

1. Applicant's Remarks/Arguments filed on 5/18/2006 have been considered. Claims 1-97 are currently pending.
2. Acknowledgement is made of the amended Figs. 1 and 11 regarding the objection to the drawings as set forth in the previous Office Action. The corrections are acceptable and the objection to the drawings is withdrawn.
3. Acknowledgement is made of the amended reference numerals in the abstract regarding the objection to the specification as set forth in the previous Office Action. The corrections are acceptable and the objection to the specification is withdrawn.
4. Acknowledgement is made of the amended claims 5, 11, 19, 27, 32, 37, 43, 48, 54, 58, 64, 68, 75, 80, 87, 92 regarding the U.S.C. 112, second paragraph rejection as set forth in the previous Office Action. The corrections are acceptable and the U.S.C. 112, second paragraph rejection is withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-2, 4-5, 7, 31-33, 35, 96-97 are rejected under 35 U.S.C. 102(e) as being anticipated by Masui et al. (USP 6,393,013).

Regarding claim 1, Masui discloses a communication method for a plurality of communication terminals sharing a single channel to permit a communication channel to communicate at a predetermined communication cycle (a cycle of reservation, reply and traffic transmission, Fig. 2A) while avoiding a collision with an other communication terminal (each mobile terminal is assigned by a base station a time slot for transmission on a traffic channel, col. 2, lines 5-42), comprising:

a communication timing registering step for, upon start-up of communication, allocating communication timing of a communication terminal (base station receiving a reservation packet from a mobile terminal, col. 2, lines 5-42, Fig. 1) intending to start the communication within said communication cycle, upon start-up of the communication (upon receiving a reservation packet, a time slot on traffic channel is assigned by the base station in accordance with a scheduled control, col. 2, lines 5-42); and

a notifying step for notifying other communication terminals sharing said channel of the allocate communication timing (notifying each mobile terminal of the assignment result through a reply packet, col. 2, lines 5-42);

whereby said notifying is performed for each iteration of said communication cycle (notification of the time slot assignment to each mobile terminal is performed through a reply packet during each communication cycle; note that a communication cycle is interpreted as request for traffic channel, reply time slot assignment through reply packet, and data transmission on time slot assigned).

Regarding claim 2, Masui discloses the communication method according to claim 1, wherein

at least one communication control unit (base station) for controlling said communication cycle (base station is assigning a time slot for transmission on a traffic channel by a mobile terminal) is provided in a network comprised of the plurality of connected communication terminals sharing said channel (a plurality of mobile terminals for transmission on a traffic channel, col. 2, lines 5-42, Fig. 1),

said communication control unit (base station), when said communication terminal (mobile terminal) intending to start communication transmits an allocation request for said communication timing to said communication control unit (mobile terminal transmission reservation request packet to base station), executing said communication timing registering step (upon receiving a reservation request from a mobile terminal, base station assigns a time slot on

a traffic channel to the mobile terminal) and executing said notifying step (base station notifies each mobile terminal of the assignment result, col. 2, lines 5-42).

Regarding claims 4, 32, Masui discloses the communication method according to claim 1, wherein a real time region (radio/traffic channels, col. 4, lines 1-8) for communicating real time data based on the allocated communication timing (for communicating sound and image signals, col. 4, lines 1-8) and a random access region (reservation channel and reply channel) for communicating data (reservation packet transmission control) at random timing (mobile terminal requests for data transmission at arbitrary timing, col. 2, lines 52-60) are provided by dividing said communication cycle into two sections (reservation and reply is one section and traffic transmission is another section, Fig. 2A).

Regarding claims 5, 33, Masui discloses the communication method according to claim 4, wherein said real time region is set up successively in said communication cycle corresponding to said communication timing allocated (traffic channel is set up successively according to the time slots assigned, col. 2, lines 52-60, Fig. 3) while a remaining region (reservation channel and reply channel, Fig. 2A) of said communication cycle is used as said random access region.

Regarding claims 7, 35, Masui discloses a communication system to perform the communication method according to claim 1, wherein said channel uses a carrier (PN sequence) of a same predetermined frequency (data are transmitted at the same carrier frequency, col. 6, lines

16-27) and avoiding a collision (avoid collision) is carried out by detecting presence or absence of said carrier (each of transmitted data can be identified individually based on time deviation of one or more chips in transmission timing between respective symbols in data, col. 6, lines 16-41).

Regarding claims 31, 96, 97, Masui discloses a communication system (Fig. 1), comprising:

at least one communication control unit (base station) and plurality of other communication terminals (mobile terminals) sharing a single channel (sharing a traffic channel) and said plurality of other communication terminals (mobile terminals) communicate at a predetermined communication cycle (a cycle of reservation, reply, and traffic transmission, Figs. 1 and 2A) while avoiding a collision with other communication terminals (avoiding collision, col. 6, lines 16-41),

each of said plurality of communication terminals (mobile terminals) including:

allocation request means for, upon start-up of communication, generating a communication timing allocation request (generating a reservation packet) and transmitting this to said communication control unit (transmitting this reservation packet to base station, col. 2, lines 5-42); and

a transmission control means for transmitting data at communication timing allocated by said communication control unit at every communication cycle (transmitting traffic on traffic channel on assigned time slots, col. 2, lines 5-42), said communication control unit including:

means for controlling said communication cycle (controlling reservation, reply, and traffic transmission, col. 2, lines 5-42, Fig. 1);

communication timing allocation means for allocating said communication timing to said communication terminal of a requester (assigning time slots to the mobile terminal) corresponding to said allocation request from each of said plural communication terminals (corresponding to the reservation packet request from each mobile terminal, col. 2, lines 5-42); and

communication timing notifying means for transmitting said communication timing allocated by said communication timing allocation means to each of said plural communication terminals (notifying assignment result to each of the mobile terminals, col. 2, lines 5-42);

whereby said notifying is performed for each iteration of said communication cycle (notification of the time slot assignment to each mobile terminal is performed through a reply packet during each communication cycle; note that a communication cycle is interpreted as request for traffic channel, reply time slot assignment through reply packet, and data transmission on time slot assigned).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 52, 54-55, 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masui et al. in view of Kinnunen et al. (USP 6,545,995).

Regarding claim 52, Masui discloses a communication terminal of communication system, wherein

at least a communication control unit (base station) and a plurality of communication terminals share a channel (mobile terminals sharing a traffic channel, col. 2, lines 5-42) and each of said plurality of communication terminals carries out communication at every predetermined communication cycle (communication cycle comprises reservation, reply and traffic transmission, Fig. 2A) while avoiding a collision with other communication terminals (avoiding collision, col. 6, lines 16-41), comprising:

allocation request means for, prior to start-up of data communication, generating a communication timing allocation request (generating a reservation packet) and transmitting this to said communication control unit (sending reservation packet to base station, col. 2, lines 5-42); and

transmission control means for transmitting data at said communication timing allocated said communication control unit at every said communication cycle (each mobile terminal transmits data at an assigned time slot, col. 2, lines 5-60);

Masui does not explicitly show said terminal is operable to receive, for each iteration of said communication cycle, communication timing allocation information for one or more other communication terminals sharing said channel.

However, Kinnunen discloses a mobile telephone system notifies the prioritized mobile station and the third mobile station that the first mobile station has been allocated a time slot or time period in which the mobile station can transmit a speech item request, wherein the notification is performed by transmitting a signaling message at least to the first mobile station and the third mobile station (see col. 6, lines 18-28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify time slot assignment and notification method and apparatus in the mobile communication system of Masui with the teaching of Kinnunen in notifying the time slot assignment result of a mobile station to at least one or more other mobile stations such that the radio terminals disclosed in Masui is operable to receive, for each iteration of said communication cycle, communication timing allocation information for one or more other communication terminals sharing said channel.

The motivation to do so is to refrain a first mobile station that receives time slot allocation result from other mobile stations from transmitting their signaling messages in the time slots or time period allocated the first mobile station.

Regarding claim 54, Masui discloses the communication method according to claim 1, wherein a real time region (radio/traffic channels, col. 4, lines 1-8) for communicating real time data based on the allocated communication timing (for communicating sound and image signals,

col. 4, lines 1-8) and a random access region (reservation channel and reply channel) for communicating data (reservation packet transmission control) at random timing (mobile terminal requests for data transmission at arbitrary timing, col. 2, lines 52-60) are provided by dividing said communication cycle into two sections (reservation and reply is one section and traffic transmission is another section, Fig. 2A).

Regarding claim 55, Masui discloses the communication method according to claim 4, wherein said real time region is set up successively in said communication cycle corresponding to said communication timing allocated (traffic channel is set up successively according to the time slots assigned, col. 2, lines 52-60, Fig. 3) while a remaining region (reservation channel and reply channel, Fig. 2A) of said communication cycle is used as said random access region.

Regarding claim 57, Masui discloses a communication system to perform the communication method according to claim 1, wherein said channel uses a carrier (PN sequence) of a same predetermined frequency (data are transmitted at the same carrier frequency, col. 6, lines 16-27) and avoiding a collision (avoid collision) is carried out by detecting presence or absence of said carrier (each of transmitted data can be identified individually based on time deviation of one or more chips in transmission timing between respective symbols in data, col. 6, lines 16-41).

Allowable Subject Matter

7. Claims 8-14, 15-22, 23-30, 36-40, 41-45, 46-51, 53, 58-61, 62-71, 72-83, 84-95 are allowed.

8. Claims 3, 6, 34, 56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

In claim 3, said communication terminal intending to start communication allocates its own communication timing by itself to execute said communication timing registering step and execute said notifying step.

In claim 8, a communication timing allocation step for, if said response arises corresponding to said call, allocating communication timing for said call terminal and said mating terminal in said communication cycle.

In claims 15, 23, 41, 72, empty setting step for setting the length of empty time in said channel capable of starting transmission of data corresponding to the allocated communication order in said communication terminal to which said communication order is allocated.

a data transmitting step for transmitting data, when emptiness of the same length as said empty time set up in aid empty time setting step is detected on said channel in said communication terminal to which said communication order is allocated, transmitting data.

In claims 36, 62, 63, allocation request means for, if a response is returned from said mating terminal corresponding to said communication request formed by said communication request means, forming an allocation request of communication timing for itself which is a call terminal and said mating terminal and transmitting this to said communication control unit.

In claims 46, 84, 85, allocation request means for, if a response is returned from said mating terminal corresponding to said communication request formed by said communication request means, forming an allocation request of communication timing for itself which is a call terminal and said mating terminal and transmitting this to said communication control unit,

empty setting step for setting the length of empty time in said channel capable of starting transmission of data corresponding to the allocated communication order in said communication terminal to which said communication order is allocated.

a data transmitting step for transmitting data, when emptiness of the same length as said empty time set up in aid empty time setting step is detected on said channel in said communication terminal to which said communication order is allocated, transmitting data.

In claim 53, a communication terminal, wherein a communication timing allocation means, prior to start-up of data communication, allocating timing to itself and notifying other communication terminals of this.

In claim 73, a communication order allocation means, prior to start-up of data communication, allocating timing to itself and notifying other communication terminals of this;

empty setting step for setting the length of empty time in said channel capable of starting transmission of data corresponding to the allocated communication order in said communication terminal to which said communication order is allocated.

a data transmitting step for transmitting data, when emptiness of the same length as said empty time set up in aid empty time setting step is detected on said channel in said communication terminal to which said communication order is allocated, transmitting data.

In claims 6, 34, 56, the communication method according to claim 4, if the real time data transmitted through said real time region is not received properly, said real time data not received properly is re-transmitted through said random access region.

Response to Arguments

9. Applicant's Remarks/Arguments filed on 5/18/2006 have been fully considered but they are not persuasive.

Applicant argued on page 3, second paragraph of the Remarks that Masui fails to disclose "the sharing of a communication channel between a plurality of communication terminals so as to permit at least one of communication terminals to communicate at a predetermined communication cycle, wherein one or more of the terminals are notified of the communication timing allocation for each iteration of the communication cycle," the examiner respectfully disagrees.

Masui discloses a base station receiving a reservation packet from a mobile terminal (see

col. 2, lines 5-42, Fig. 1), and upon receiving a reservation packet, assigns a time slot on traffic channel in accordance with a scheduled control (see col. 2, lines 5-42) and notifies each of the mobile terminals the time slot assignment on the traffic channel via a reply packet (col. 2, lines 37-42). The predetermined communication cycle is interpreted as the cycle starting from the time when the mobile terminal starts receiving a reply packet from the base station to the end of the time slot(s) during which the mobile terminal is allocated for transmission. This reads on claimed features of “the sharing of a communication channel between a plurality of communication terminals so as to permit at least one of communication terminals to communicate at a predetermined communication cycle, wherein one or more of the terminals are notified of the communication timing allocation for each iteration of the communication cycle” described in claims 1, 32, 52, 96-97.

In light of the above reasoning, claims 1, 32, 52, 96-97 stand rejected under 35 U.S.C. 102(e) as being anticipated by Masui et al. (USP 6,393,013).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin Mew
Work Group 2616

KM


RICKY Q. NGO
SUPERVISORY PATENT EXAMINER